Article history (leave this part):
Submission date2024-05-03
Acceptance date: 2024-06-17
Available online: 2024-12-23
Keywords:
Mediterranean Region; International cooperation; Blue Economy; Significance; Challenges; Regional Plans; Prospects of cooperation.
Funding:
This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.
Competing interest:
The author(s) have declared that no **competing interests** exist.
Cite as (leave this part):
Remaznia , R. (2024). title. Journal of Science and Knowledge Horizons, 4(01), 82-99. https://doi.org/10.34118/jskp.v4i01.3853

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Journal of Science and Knowledge Horizons
ISSN 2800-1273-EISSN 2830-8379

Prospects for Cooperation International in Promoting Sustainable Blue Economy in the Euro-Mediterranean Region

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Abstract:

In order to activate the principle of international cooperation, which is one of the most important purposes of the United Nations, which was explicitly referred to in its founding charter in the text of Article 1, 3, as well as Article 52 of Chapter 8, regional organizations sought to support opportunities to move towards the blue economy, as efforts resulted in the emergence of many regional initiatives in The Euro-Mediterranean region has been formulated in the form of forward-looking and directive plans. Accordingly, this study aims to identify the various challenges facing this young economy, and to evaluate current regional efforts while anticipating the future of this sector to reach the conclusion that the reality of this cooperation remains very modest, in light of the lack of political will. Scientific and technological disparity between Mediterranean countries.

*** /dr Boukourou manel**

Introduction:

The Mediterranean Sea, since antiquity, has been a focal point of human civilization owing to its strategic geographic positioning at the nexus of three continents.[1] Its multitude of ports along both northern and southern shores has historically facilitated robust trade among the approximately 22 neighboring Mediterranean nations, characterized by considerable disparities in natural resources and levels of scientific and technological advancement. This geographical proximity has engendered a complex tapestry of aspirations, conflicts, territorial disputes, alliances, and cooperation across various spheres. Concurrently, the Mediterranean Sea boasts a rich marine biodiversity, hosting between 7.5 to 9 percent of the world's marine fish species, crucial for safeguarding regional food security. Moreover, it ranks among the premier global tourist destinations, drawing throngs of visitors to its picturesque coastlines and captivating coral reefs.[2]

However, the Mediterranean region confronts a litany of challenges, exacerbated by the escalating human footprint on the environment stemming from the overexploitation of terrestrial resources. These challenges manifest in the forms of overfishing, illicit fishing practices,[3] marine pollution, and litter.

Additionally, the specter of climate change has elevated sea temperatures by 3 to 4 degrees Celsius,[4] exacerbating salinity levels due to heightened evaporation rates. Moreover, intensive maritime transport exacts a toll on the Mediterranean's marine ecosystem.

These multifaceted challenges have precipitated biodiversity loss, habitat degradation, and the introduction of invasive species from the Red Sea via the Suez Canal, imperiling the sustainability of the Mediterranean's natural endowments for future generations.

In response to these pressing environmental imperatives, the United Nations issued a resolute call to action through its General Assembly Resolution A/RES/72/73 on December 5, 2017, entitled "Decade of Ocean Science for Sustainable Development," urging concerted efforts to mitigate threats to marine ecosystems and natural resources and to devise expeditious solutions to halt biodiversity decline and combat marine pollution.[5]

In answer to these global imperatives, regional focus within the Euro-Mediterranean sphere, under the auspices of the Union for the Mediterranean and the African Union, has pivoted towards the "blue economy." Rooted in the preservation of marine natural capital, the blue economy advocates for the sustainable exploitation of marine resources in a judicious and responsible manner, coupled with strategic investment in their benefits, with the overarching

aim of realizing the Sustainable Development Goals, particularly Goal 14, pertaining to the sustainable management of oceans and marine resources.

Encompassing traditional maritime sectors such as fishing, tourism, and port operations, as well as emerging sectors like aquaculture, ecotourism, shipbuilding, marine biotechnology, and renewable marine energies, the blue economy charts a new trajectory towards carbon neutrality, while also emphasizing the imperative of safeguarding the marine environment from pollution to fortify economic resilience against geopolitical fluctuations and public health crises.

Accordingly, this study aims to explore the concept of the blue economy and its role in reducing poverty, protecting food security, and ecological systems in the Mediterranean region, combating the decline of marine biodiversity, and enhancing the implementation of Goal 14 of the Sustainable Development Goals.

It also aims to highlight the various challenges facing this nascent economy and to assess the regional efforts aimed at supporting the successful pathways towards it, as well as the future of regional cooperation in this field. Through the foregoing, the following issue can be raised:

Have the Euro-Mediterranean countries' initiatives successfully embodied the genuine efforts aimed at the regional orientation towards a sustainable blue economy, and what is the future of this developmental approach in the face of current international challenges?

To answer this question, we relied on several scientific methods: the historical method was used for the historical rooting of the concept of the blue economy, the descriptive method to recognize the conceptual framework of the blue economy, its principles, goals, significance, and the challenges it faces. The analytical method was then used to analyze various texts of the Euro-Mediterranean regional plans in this area. Additionally, the critical method was employed to address the gaps that mar each document and prevent the achievement of its goals in reality.

The study is methodologically divided into two main sections:

- **The First Topic: The Essence of the Blue Economy and the Challenges it Faces in the Euro-Mediterranean Region.**
- **The Second Topic: The role of regional initiatives in enhancing future cooperation opportunities in the field of the blue economy in the Euro-Mediterranean region.**

The First Topic: The Essence of the Blue Economy and the Challenges it Faces in the Euro-Mediterranean Region.

In this section, we explore the historical development and conceptual framework of the blue economy, followed by an exposition of its principles, goals, significance, and the challenges it encounters in the Euro-Mediterranean region.

1.1 Historical and Conceptual Roots of the Blue Economy:

The concept of the blue economy, also known as "the ocean economy," emerged as a new global developmental idea initiated by the Pacific Island nations. These countries, possessing vast exclusive economic zones, efficiently and sustainably leveraged their significant natural marine resources. This concept was reintroduced through international conference proceedings, starting with the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil from June 3 to 14, 1992, under UN General Assembly Resolution 44/228.

This conference aimed to address threats endangering our human environment and natural resources, including the protection of seas, oceans, and their biodiversity. The conference concluded with the adoption of several international instruments, most notably the 1992 Convention on Biological Diversity, alongside 27 principles that serve as an international action plan for achieving developmental environmental goals.

This was further embodied in the "Agenda 21," a 800-page action plan aiming to protect the environment and sustainably develop natural resources for current and future generations, particularly through Chapter 15 titled "Conservation of Biological Diversity," which urges nations to develop urgent national plans to protect biodiversity, use natural resources wisely, and encourage international and regional cooperation in environmental information exchange, technology transfer, and capacity building. This chapter also promotes international cooperation in enacting international agreements and developing urgent international and regional action plans in this field.[6]

Chapter 17 of the agenda, titled *"Protection of All Oceans, Seas, Including Enclosed and Semi-enclosed Seas and Coastal Areas and the Protection of Their Living Resources and Rational Use and Development,"*[7] encourages nations to achieve integrated management and sustainable development of coastal areas including exclusive economic zones and the high seas, and to use selective fishing tools for targeting only specific species.

It also emphasizes enhancing scientific research for the sustainable development of marine resources and protecting the environment from pollution, as well as protecting habitats and ecologically sensitive areas. This chapter also focuses on bolstering international cooperation at bilateral, multilateral, regional, sub-regional, and global levels with countries and international and regional

organizations to ensure sustainable fisheries management, with commitments to monitoring and evaluation programs, coordinating scientific research and analysis, forecasting, and evaluation of stocks, and prohibiting destructive fishing practices such as dynamite and poison fishing, and monitoring the fishing activities of vessels flying their flag in high seas, and fully complying with General Assembly Resolution 46/215 on large-scale pelagic drift net fishing.[8]

Since the aforementioned Rio conference, international interest in protecting the environment and resources of the seas and oceans has increased through numerous international conferences. Notably, the Blue Economy Summit in Abu Dhabi in 2014 continued discussions on blue economy issues and sustainable development of natural resources initially raised during the Rio+20 conference.

Then, the 2017 New York conference held at the United Nations headquarters from June 5-10, 2017, discussed the implementation of Sustainable Development Goal 14. The first global Blue Economy Conference in Nairobi in 2018, from November 26-28, titled "The Blue Economy and the 2030 Agenda for Sustainable Development," saw participation from approximately 184 countries.

This conference aimed to enhance the orientation towards ocean economies to combat poverty, address climate change, promote fish productivity,[9] develop fisheries, build capacities, and involve the private sector in these endeavors. Also, the World Ocean Summit held in Abu Dhabi from March 5-7, 2019, served as a second global summit for the oceans.

The term "blue economy" was first defined by Belgian economist Gunter Pauli in his 2010 book titled "The Blue Economy: 10 Years, 100 Innovations, 100 Million Jobs." In this work, Pauli emphasized the substantial productivity of this type of economy, based on seas and oceans due to their vast expanses and significant financial returns.

The blue economy was officially defined for the first time based on his book at the first international forum following the 2012 United Nations Conference on Sustainable Development, known as Rio+20, as:[10] *"An economy that emphasizes the sustainable management of water resources to sustain economies based on them, considering that healthy ocean ecosystems are more productive and are essential for the sustainability of ocean-based economies*."

This definition was adopted at the time due to the opposition of many developing coastal and island nations to the international shift towards a green economy during the preparatory works of the conference. Their geographic nature and high vulnerability to drought due to climate changes made these nations more supportive of shifting towards a blue economy. Given their extensive coastlines and rich natural marine potentials, this shift was deemed necessary.

As a result of this proposal, for the first time, the participating countries unanimously agreed on the necessity to pivot towards an ocean-based blue economy for the benefit of all humanity. This alignment with the previously mentioned points led to the emergence of various definitions of the blue economy.

The United Nations Environment Programme (UNEP) defines the blue economy as an economy that: "*Leads to improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities.*[11]"

Based on the aforementioned, the UNEP program considers the blue economy a new developmental approach aimed at achieving resource efficiency and protecting the marine environment, which is vital to the blue economy. This encompasses various activities such as maritime shipping, port operations, ship repair and building, offshore wind energy, marine mining, and responsible marine fishing and aquaculture.

The World Bank defines the blue economy as:[12] "*The sustainable use of ocean resources for economic growth, improved livelihoods, and jobs while preserving the health of the ocean ecosystem."*

The Food and Agriculture Organization (FAO) describes this term as: "*An* economy that leverages the full potential of marine activities within water bodies including oceans, seas, and bays, optimizing returns from these economic activities such as fishing, maritime transport, logistics, tourism, and mining."[13]

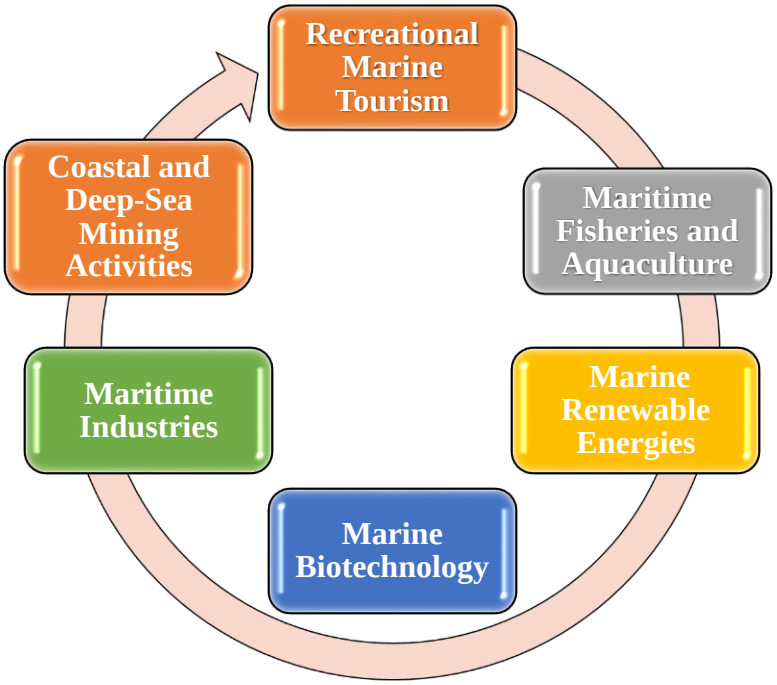
The Union for the Mediterranean's Sustainable Development Initiative characterizes the blue economy as: "A commitment to protecting fish stocks, creating a safe maritime domain, and fostering a resilient and smart blue economy, striving for optimal governance of the sea and its resources.[14]"

From these definitions, we deduce that the blue economy includes a series of diverse activities (such as marine fishing, aquaculture, maritime shipping, port activities, ship repair and building, renewable marine energies, and marine mining) as a modern developmental direction that emerged in 2012 following the United Nations Rio+20 Conference.

This new type of sustainable maritime economy is based on the equitable and fair sharing of marine and oceanic resources as profitable and wealth-generating commercial opportunities for both present and future generations. Therefore, the blue economy aims to achieve a series of goals, the most important of which include protecting food security through the promotion of aquaculture and rational exploitation of living resources via sustainable fishing, supported by the implementation of the 1995 [15]Code of Conduct for Responsible Fishing.

It also aims to eradicate poverty and unemployment by creating sustainable job positions, and to protect energy security through mining and the shift towards renewable marine energies to protect the climate[16]. This encompasses maritime transport, tourism, marine services, and shipbuilding activities, often referred to as sectors of the blue economy.

Figure 1: Blue Economy Sectors



Source: Prepared by the researcher

From the figure above, we conclude that the blue economy sectors collectively aim to achieve Sustainable Development Goal 14 by 2030, which focuses on enhancing the sustainability of the seas and oceans and their natural resources. This includes supporting the wise management of marine ecosystems to achieve sustainable productivity of the seas and oceans and earnestly increasing the blue economy's contribution to the national GDP from aquaculture and marine fishing

activities as a means to achieve social justice through the creation of sustainable tourism industries that provide permanent job positions in coastal and marine tourism. [17]

On the other hand, the blue economy also aims to protect water security through seawater desalination to address water stress and to shift towards marine-sourced renewable energies as a means to meet national energy needs, in addition to mining activities and the use of renewable energies such as tidal movements, etc. The blue economy also aims to achieve effective community participation, involving the private sector and stakeholders in this field.[18]

However, these goals will not be effectively achieved unless states respect their commitments arising from their ratification of international conventions dedicated to the protection of marine biodiversity, including the 1982 United Nations Convention on the Law of the Sea, the 1992 Convention on Biological Diversity, the 1995 agreement related to the implementation of the provisions of the 1982 United Nations Convention on the Law of the Sea concerning the conservation and management of straddling fish stocks and highly migratory fish stocks, in addition to respecting the terms of regional conventions on the subject, among the most important of which are the 1968 African Convention on the Conservation of Nature and Natural Resources, the 1966[19] International Convention for the Conservation of Atlantic Tunas, the 1976 Barcelona Convention and its protocols concerning the protection of the marine environment and coastal areas of the Mediterranean amended in 1995, and the 1996 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area.

2.1 The Importance of the Blue Economy in the Mediterranean and the Challenges it Faces:

The Mediterranean Sea, with its vast natural resources, provides substantial food stocks, immense biological and botanical diversity, and vast energy resources to the peoples of the region. Moreover, its significant role as one of the major global shipping routes is underscored by its strategic location, attracting about 10 percent of maritime voyages and 2.5 million travelers in 2018.

The commercial shipping in the Mediterranean accounts for approximately 27 percent of global trade flow due to the strategic positioning of major global ports in the region, such as the Port of Barcelona in Spain, which is the largest in the Mediterranean and contributes about 7.1 percent of the total added value and 6.3 percent of employment. Similarly, the Port of Genoa in Italy supports approximately 122,000 jobs and contributes 10 billion euros to the Italian economy.

The Port of Marseille in France, the third-largest Mediterranean port, supports about 41,500 jobs. The Port of Tangier in Tunisia, a major container port, handled a total of 5,771,221 containers, though these numbers saw an unprecedented decline during the COVID-19 pandemic.[20]

The Mediterranean Sea significantly propels the global economy, with a World Bank study estimating the Mediterranean blue economy's contribution to the global economy at around $3.6 trillion through sectors like fisheries and aquaculture. These sectors are pillars of the blue economy in the Mediterranean, providing approximately 800,000 tons of fish annually between 2014-2016. Fishing revenues in the Mediterranean region accounted for about 10 percent in 2018, ranging between 2.3 and 3.7 billion euros, with Italy, Greece, Spain, Algeria, and Tunisia generating 83 percent of total fish revenue, while only six countries (Morocco, Tunisia, Turkey, Spain, Croatia, and Greece) export these products.[21]

The maritime fishing sector provides about 200,000 direct and 500,000 indirect jobs, both full-time and part-time, including seasonal labor. Coastal and maritime tourism is one of the most significant sectors of the blue economy in the Mediterranean, thanks to its enchanting nature and warm beaches, serving as a hub for global tourism.

This sector provided about 2.5 million tourism jobs in the southern Mediterranean in 2017 and 4.9 million in 2019. Additionally, the blue economy plays a vital role in supplying fresh water suitable for drinking through desalination plants. For instance, about 20 desalination plants were constructed in Algeria, with additional plants planned following the signing of an agreement on July 29, 2021, to establish three more desalination plants in Algiers and Boumerdès, in partnership with Algerian Energy Company (AEC), National Company of Civil Engineering and Building (ENGCB) under Sonatrach, and the public enterprise specialized in construction and public works, COSIDER.[22]

2.3 Challenges Facing the Blue Economy in the Euro-Mediterranean Region:

Despite the significant economic importance of the blue economy sectors to the Mediterranean countries, this new developmental approach faces several challenges that hinder the achievement of its desired goals. The Mediterranean marine environment is experiencing significant environmental degradation, particularly after the alarming decline in its biological diversity due to negative human activities such as overfishing, and pollution from land, sea, and air sources.[23]

Moreover, the Mediterranean Sea suffers from a severe marine litter problem, being one of the world's most polluted seas according to a report by the World

Wide Fund for Nature (WWF), which highlighted the severity of the issue after approximately half a million tons of plastic were dumped into the Mediterranean waters annually.

This is equivalent to about 33,800 plastic bottles being thrown into the sea every minute. The WWF estimated the density of litter in the Mediterranean at 1,048 items per square meter, prompting regional countries to intensify efforts towards sustainable marine circular economy through the implementation of the European Union's action plan towards a circular economy by 2030. This includes collecting plastic packaging within the Mediterranean EU countries, making it recyclable, and choosing renewable and biodegradable materials.[24]

To address the unprecedented decline in fish productivity, especially in the western Mediterranean due to various human and natural factor[25]s, approximately one-third of commercial fish stocks are currently being fished at environmentally unsustainable levels[26]. This could potentially deprive the Mediterranean population of immense biological diversity in the future, offering genetic resources for food and agriculture, according to reports from the Food and Agriculture Organization (FAO) an[27]d the Comprehensive Biodiversity Bulletin issued by the United Nations Development Programme (UNDP) in 2001, which regards biodiversity as the largest contributor to securing goods and services aimed at meeting the needs of the population.[28]

In addition to the negative impacts of climate change on the Mediterranean marine environment, which have made its waters warmer and saltier, these factors have adversely affected the ecosystems and the biodiversity that is collapsing day by day. This has posed an unprecedented threat to food security and the sustainability of fisheries, especially in the densely populated Southern Mediterranean countries that rely on fish for their food and national income, such as Morocco. Furthermore, there is a significant underutilization of potential in the field of renewable energies, unfortunately, due to weak regional cooperation despite the promising resources like floating photovoltaic systems, wind turbines, and desalination technology, particularly in Mediterranean countries experiencing severe droughts. Additionally, the generation of clean, low-cost electricity using renewable energy sources like wave energy, tidal energy, salinity gradient power, and offshore wind energy through fixed and floating platforms replaces costly and imported diesel-operated power generation systems, leading to reduced carbon dioxide emissions and lower import bills.[29]

Coastal tourism in the Mediterranean contributes to the extinction of many marine species due to noise pollution and overfishing, as tourism often concentrates in areas with high biodiversity, posing a serious threat to the habitats of endangered species, which could ultimately destroy the natural Mediterranean environments

and deter tourists from visiting the Mediterranean due to its pollution and the extinction of its biodiversity.[30]

The blue economy is considered a part of the clean green economy according to the recommendations of the United Nations Environment Programme, as it is a sustainable marine economy aimed at achieving economic development safe from the fluctuations of global markets due to wars, conflicts, and health pandemics. This has made this type of economy receive global and regional attention as a new direction to advance sustainable blue economies through enhancing the close interconnection between food security, energy security, and environmental security.

Furthermore, the blue economy is recognized as a clean economy, a sector that relies on prudent and sustainable marine consumption patterns for the benefit of present and future generations, which realistically can only be achieved through the establishment of serious opportunities for international and regional cooperation to effectively address the challenges and obstacles facing the region, especially in light of the continuing marine pollution, biodiversity degradation, climate change, and lack of regional cooperation in the exchange of expertise, information, and marine technologies among Mediterranean neighboring countries, and the ongoing issue of legal voids.

This leads us to question the efficacy of Euro-Mediterranean initiatives in supporting the future orientation towards a sustainable blue economy, especially in the face of current international challenges, which we will discuss in the next section of this study.

The Second Topic: The Role of Regional Initiatives in Enhancing Future Cooperation Opportunities in the Field of the Blue Economy in the Euro-Mediterranean Region.

Due to the absence of an international legal framework specifically for the blue economy, whether in the form of international or regional agreements, this part of the study highlights the most important regional initiatives that have materialized in the form of plans and strategies in the Euro-Mediterranean region, which is the spatial framework of this study.

2.1 Regional Initiatives for Moving Towards a Sustainable Blue Economy in the Euro-Mediterranean Region:

A- The Mediterranean Strategy for Sustainable Development 2016-2025:

The Mediterranean Strategy for Sustainable Development 2016-2025, adopted by Decision 2-22 on February 19, 2016, at the 19th meeting of the Conference of Parties to the 1976 Barcelona Convention for the Protection of the Marine

Environment and Coastal Areas, based on Article 04, adopts a Mediterranean plan until 2030[31], serving only as a guidance document for stakeholders and partners at the regional level.

In this context, the plan encourages contracting states to direct their national strategies for the protection of the Mediterranean marine environment and to build horizontal cooperation pathways between government sectors and vertical cooperation pathways between governmental bodies at the local and central levels.

Additionally, all regional organizations in the Mediterranean are invited to support the implementation of the strategy and encourage investment in environmental sustainability to achieve the sought-after economic development in Mediterranean maritime and coastal areas.

The strategy aims to achieve the following six objectives[32]: ensuring sustainable development in Mediterranean maritime and coastal areas, enhancing the management of natural resources and protecting food security in the Mediterranean, planning and managing sustainable, environmentally friendly Mediterranean cities, combating climate change in the Mediterranean, transitioning to a sustainable green and blue economy, and improving governance in support of sustainable development.

To implement these objectives, the strategy established an implementation mechanism in the form of the Mediterranean Commission on Sustainable Development, created in 1995 as the body composed of the contracting parties to the Barcelona Convention, which includes 22 countries.

The commission also comprises stakeholders, representatives in networks of local authorities, civil society, non-governmental organizations, social and economic actors, international governmental organizations, the academic community, and parliamentarians. To ensure greater effectiveness of this document, the contracting parties are urged to submit a voluntary national review called the Peer Review Mechanism to identify common issues in implementing their national strategies in the field of sustainable marine development.

In this context, several national reports have been issued in this area, such as reports from Montenegro, France, and Morocco during 2016-2017, and Albania, Tunisia, and Egypt during 2018-2019. On the other hand, the Mediterranean Strategy has supported the establishment of the Mediterranean Trust Fund for Protected Marine Areas (MedFund), and has also encouraged the creation of a regional mechanism to assess the impacts of climate change on the region and mitigate its effects through the establishment of the "Network of Mediterranean Experts Concerned with Climate Change and its Impact on the Environment."[33]

Based on the previous discussion, we can conclude that the Mediterranean Strategy represents a significant step towards the sustainability of the Mediterranean Sea and its resources by activating mechanisms for implementation and monitoring, and by supporting the Trust Fund for Protected Marine Areas in the Mediterranean.

However, this strategy remains merely a guiding plan lacking the binding force necessary to enforce it across the regions of the state parties to the 1976 Barcelona Convention exclusively, not extending to other regional agreements. This necessitates regional cooperation to formalize it into a binding legal instrument.

2.2 Union for the Mediterranean's Efforts Towards a Sustainable Blue Economy:

The Union for the Mediterranean (UfM), an international governmental organization comprising 28 European Union member states and 15 nations from the southern and eastern Mediterranean shores, is designed to foster regional cooperation. The Union's focus includes executing projects and initiatives in various sectors, notably the blue economy. On November 17, 2015, the UfM ministers adopted a ministerial declaration on the blue economy to enhance its potential across the Mediterranean region.

Furthermore, the second ministerial meeting of the UfM on the blue economy was held in Malta from March 11 to 25, 2021. Conducted online, it facilitated consultations with stakeholders, including research centers, universities, public administrations, the private sector, international organizations, and NGOs. Discussions covered a range of topics, including governance, maritime tourism, fish stock assessments, maritime transport, port management, marine energy, employment, safety, and surveillance.

This gathering also emphasized opening new opportunities for innovation and investment and establishing a new collaborative approach through the creation of communication mechanisms with stakeholders by developing a regional platform for knowledge exchange in the maritime sectors.[34]

The outcomes of these ministerial meetings were consolidated into a 100-page report titled "Union for the Mediterranean towards a Sustainable Blue Economy in the Mediterranean Region" for the year 2021. This report addresses the environmental and economic challenges in the region, advocating for a shift towards a clean economy, combating marine pollution, environmental damages, and supporting marine fishing and aquaculture activities.

It promotes a transition to clean maritime transport, shipbuilding, maritime safety and security, and coastal tourism to maximize job creation[35]. Additionally, the

report encourages investment in emerging fields such as renewable marine energy and supports the transition to a circular blue economy through earnest coordination with decision-makers in the Mediterranean basin.

It commits to the provisions of the 1976 Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean against pollution and the Mediterranean Action Plan, which the report recognizes as a regional legal framework to address current and future challenges in the blue economy sector.

The report also calls for ensuring a successful future for the blue economy in the Mediterranean by establishing digital platforms in the region. In line with this direction, a platform for stakeholders in the Mediterranean blue economy sector (Medbesp) was created. Medbesp is an electronic regional platform for exchanging technical and sectoral maritime knowledge related to navigation in the Mediterranean area and capacity building. This platform produces a range of publications and houses a library containing training materials on the blue economy available through videos, reports, and printed materials.

Additionally, the Common Oceans Initiative platform aims to make the seas protected and productive areas. This platform gathers EU member states and Mediterranean countries investing in scientific research to achieve the sustainability of the blue economy sectors. A special financing system for the sustainable blue economy in the Euro-Mediterranean region was provided through banks and financial institutions.

The World Bank approved a $350 million financing to assist Morocco in implementing its blue economy program to protect its food security and economic growth[36]. In this context, to support the United Nations Environment Programme's financing initiative and the Mediterranean Blue Economy Financing Initiative, a guide was issued in coordination with the European Commission and the green financing funds through grants, loans, and co-financing.

The Marine Protected Areas Fund in the Mediterranean also works on enhancing the long-term financial sustainability of marine areas through the establishment of a trust fund jointly managed between Mediterranean countries and regional organizations. In this context, the European Commission granted about €1.8 trillion to support the recovery of the European Union and strengthen partnerships with Southern Mediterranean countries, allocating €86 billion in May 2020 to assist neighboring countries[37].

Furthermore, the Interneg program, which enhances partnerships with the European Union and partner countries post-2020, along with the European

Investment Fund, provided financial support totaling €50 million to several countries within the EU.

The European Bank for Reconstruction and Development in 2019 financed sustainable development bonds worth €28.6 million for a five-year period, anticipating more financing for South and East Mediterranean countries to boost investment opportunities in this area. The Global Environment Facility also funds developing countries in the Mediterranean and their projects in the blue economy sector.[38]

However, a critical shortcoming of the 2021 report is that despite its positive aspects, it unfortunately did not involve the African Union, the Arab Maghreb Union, or the Arab League as regional organizations in its drafting. This oversight clearly neglects the idea of collective action and effective partnership in decision-making with regional organizations in the Mediterranean region to achieve the desired goals. Additionally, the non-binding nature of this report from a legal standpoint diminishes its effectiveness and enforceability.

2.3 The Role of Africa's Agenda 2063 in Promoting the Blue Economy:

Africa's central geographical position, with its northern boundary facing the Mediterranean Sea, includes five Mediterranean African countries: Algeria, Morocco, Tunisia, Libya, and Egypt. These nations are among the most densely populated on the continent, necessitating a shift towards new, wealth-generating economies in the current volatile international environment.

This need has prompted governments across Africa to embrace the blue economy, which is crucial for enhancing the social welfare of the Mediterranean African populations. Notably, over 90% of African imports and exports, particularly in the Mediterranean region, are conducted via maritime routes, underscoring the blue economy's vital role in sustaining marine biodiversity and freshwater fisheries through aquaculture.

This sector is expected to significantly expand employment opportunities for Africans in marine fishing, fish processing, fishing net manufacturing, and in the pharmaceutical, biotechnological, and food industries, thereby integrating African women into the workforce to help reduce poverty.

Recognizing this significance, African leaders at the African Union Summit in 2013 in Addis Ababa, Ethiopia, established Agenda 2063. This visionary and ambitious roadmap for the next fifty years aims to align its goals with the Sustainable Development Goals, particularly Goal 14. Agenda 2063 prioritizes the blue economy as a key area for the next decade, especially for African coastal countries. [39]

By integrating the blue economy into national development plans, like those of Seychelles and South Africa, which launched the Operation Phakisa initiative in 2014 to harness ocean resources for maritime and mining activities, along with Togo and Senegal, which have implemented national plans for a sustainable blue economy, significant strides are being made.

Algeria also has developed the National Blue Economy Strategy 2030 to attract both public and private investors in marine activities such as fishing, aquaculture, coastal tourism, renewable marine energy, marine biotechnology, shipbuilding, and deep-sea fishing.[40]

Agenda 2063 plays a crucial role in urging African Mediterranean countries to adopt a blue economy. However, this regional document, like others mentioned earlier, lacks binding force. It remains a non-compulsory guiding document that lacks legal enforcement without being enshrined in a binding regional treaty ratified by the participating states.

This results in merely moral commitment from countries already struggling with economic fragility, inadequate maritime infrastructure, lack of digital advancement in maritime activities compared to developed nations, high poverty rates, rapid demographic growth putting pressure on natural marine resources, and posing real threats to food and water security.

This imbalance between high population growth and limited job opportunities, coupled with a lack of investment in the blue economy and exacerbated by security tensions and civil wars, further complicates the effective implementation of Agenda 2063. Additionally, the scarcity of technical and technical skills needed in the maritime labor market due to inadequate training poses a significant challenge to fulfilling Agenda 2063's current objectives.

Moreover, the lack of government developmental plans in the blue economy, insufficient legislative and institutional frameworks, pervasive bureaucratic red tape, high production costs, and the previous impact of terrorist attacks on the tourism sector in Algeria, Egypt, and Tunisia, compounded by the effects of the COVID-19 pandemic since 2019, have posed significant challenges to implementing Agenda 2063 due to economic vulnerability and weak cooperation with leading countries in this field.

2.4 Future of the Blue Economy Sectors in the Euro-Mediterranean Region:

A. Future of Fisheries and Aquaculture:

To enhance the fisheries and aquaculture sector in the Mediterranean region, the 2021 report by the Union for the Mediterranean underscores the necessity of launching monitoring programs for fishing, especially for endangered species,

and promoting aquaculture by providing adequate space for fish farming and encouraging investments.

The creation of small and medium-sized enterprises is vital for protecting food security in the Mediterranean and minimizing environmental impacts at the regional level. Compliance with the commitments of the states parties to regional treaties for the protection of marine biodiversity in the Mediterranean, involving regional fisheries bodies like the General Fisheries Commission for the Mediterranean (GFCM), is essential for the development and sustainable management of Mediterranean marine biodiversity.

In this context, Mediterranean countries have been establishing national plans to diversify the sector for years, contributing to a significant increase in fish and shellfish production from 643,000 tons in 2000 to 1,575 tons in 2016, with expectations for further growth in the coming years. Turkey, for example, accounts for 82% of the total aquaculture production in the region, valued at $670 million, followed by Greece, Italy, and Spain.[41]

The future of fishing and aquaculture in the Euro-Mediterranean area is influenced by several factors, with one of the most critical being the necessity for spatial and temporal closures to allow for the recovery of depleted fish stocks[42]. Alongside advocating for responsible and sustainable fishing practices, there is an urgent need to launch stock monitoring programs in the Mediterranean, particularly in areas where fish production is declining and ecosystems are fragile.

Additionally, enhancing cooperation among Mediterranean countries in the sustainable management of Mediterranean marine resources and supporting the competitiveness of the aquaculture sector are paramount. Encouraging marine scientific research and boosting cooperation between the northern and southern shores of the Mediterranean through free trade of products is also essential.

The Blue Med Initiative exemplifies efforts to create blue jobs in the Mediterranean and strengthen partnerships across the region. An example includes a partnership with the Food and Agriculture Organization (FAO) through the Global Fisheries Council, which includes 22 European Union countries focused on protecting living resources in the Mediterranean.

There is a hope to expand this partnership to include the Maghreb Union countries and those in the Eastern Mediterranean, and to establish a Regional Action Plan for Small-Scale Fisheries and Aquaculture in collaboration with the West Med Technical Mediterranean Group to develop sustainable fish farming.[43]

Projects like MedAID support the integrated development of aquaculture in the Mediterranean for the year 2020, further emphasizing the need to strengthen the

partnership between European Union countries and Maghreb Union countries in exchanging expertise and developing capacities.

Additionally, combating marine pollution is critical for the Mediterranean countries, who must ensure the implementation of the current and future Plastic Busters program to combat and manage marine litter. The Mediterranean has seen 0.57 million tons of plastic dumped into its waters annually, equating to about 33,800 plastic bottles thrown into the sea every minute, negatively impacting marine biodiversity and human health.

The Blue Med initiative, funded by the European Commission since 2018, works on mapping marine areas in the Mediterranean and assessing mechanisms to combat plastic pollution. However, this project is active only in the European Union region and does not cover the southern and eastern Mediterranean countries, highlighting an urgent need to address this gap.[44]

B. Future of the Maritime Transport and Ports Sector:

As discussed earlier in this study, the maritime transport and ports sector in the Mediterranean holds significant importance. However, the steady growth in shipping has put unprecedented pressure on ecosystems and led to water pollution from oil and hazardous substances[45]. Greenhouse gas emissions from Mediterranean shipping are expected to increase from 90% in 2008 to 130% by 2050[46].

The sector has also been vulnerable to fluctuations due to maritime accidents, supply disruptions, ship sinkings, fires, and explosions, leading to failures or disruptions in cargo transport and delivery. Collisions account for 17% of the incidents reported to the Regional Emergency Response Center.[47]

The sector was notably affected during the COVID-19 pandemic starting in late 2019, with global trade in the region shrinking by approximately 27%. To face these challenges and achieve a better future for the maritime transport and ports sector in the Mediterranean, efforts must focus on sustaining the sector through the creation of environmentally friendly and climate-neutral ports[48]. Mediterranean countries are urged to comply with the 0.50% carbon content in marine fuel and promote clean fuels to preserve marine biodiversity and the Mediterranean marine environment.

Further enhancing environmentally friendly ports through the electrification of ships and ports and embracing recycling to build a sustainable circular maritime economy is crucial. Initiatives like the Life EUMedfca aim to raise collective

awareness for establishing a CO2 emissions control area in the Mediterranean, also promoting the sustainability of maritime jobs and advocating for the digital transformation of ports and enhanced cooperation in maritime logistical information exchange. [49]

Mediterranean countries need to develop an effective regional strategy to prevent and mitigate marine pollution from ships, avoid maritime accidents, and respond to major pollution incidents. They should ratify the International Convention for the Prevention of Pollution from Ships (MARPOL) 1973, commit to Annex V regarding the prevention of pollution by garbage from ships in 1988, and also adopt the Hong Kong International Convention for the safe and environmentally sound recycling of ships in 2009. [50]

Furthermore, adhering to the strategic plan for 2018-2022 to improve transportation conditions in the Mediterranean, promoting employment in this crucial sector, and initiatives like the Yespmed project for employing youth in Mediterranean ports with a budget of €2.9 million across six Mediterranean countries (Italy, Lebanon, Egypt, Tunisia, Serbia, Jordan) are vital steps toward expanding the partnership to other Mediterranean countries in the future.[51]

C. Future of the Coastal and Maritime Tourism Sector:

To enhance the sustainability of the coastal and maritime tourism sector in the Euro-Mediterranean region, undoubtedly, strengthening international cooperation to fortify this sector on both sides of the Mediterranean through fair practices is necessary. Encouraging tourism investments, developing plans to monitor sector challenges, continuous evaluation, enhancing digitalization in this area, protecting the marine environment, reducing harmful gas emissions, diversifying tourism services, and promoting ecotourism are essential to face the challenges of this sector, which is one of the most unstable due to social disturbances, political crises, terrorism, wars, and health pandemics.[52]

D. Future of Renewable Marine Energies Sector:

Marine wind energy, including wind farms, tidal currents, and floating solar power, are significant renewable marine energies contributing approximately €36.1 billion and €1.1 billion to the GDP of European Union countries. This sector also employs about 4624 individuals and is expected to provide around €40 billion by 2050 to EU countries, with islands like Sardinia and the Balearic Islands alone potentially providing about 9.5 kW, accounting for approximately 10% of Europe's electricity needs by 2050.[53]

However, the situation is quite different in the south and east Mediterranean due to varying natural conditions and lower wind and tidal levels, which limits regional cooperation in this field. This type of energy is still in the experimental

phase in countries like France, Greece, Italy, and Portugal, with France establishing its first wind farm in 2021 with a capacity of 24.5 megawatts. Four Mediterranean EU countries have also adopted projects in this field, notably Italy, Portugal, and Spain, leveraging wave and tidal energy, according to a 2020 report.

To encourage the sustainability of the renewable energy sector, efforts must focus on reducing greenhouse gas emissions in the Euro-Mediterranean region, combating climate change, and moving towards digitalization related to renewable marine activities in the Mediterranean. The Maestrale project, for example, aims to raise awareness about the importance of renewable marine energy in the region in coordination with Italy, Spain, Croatia, Cyprus, Portugal, and Slovenia, providing about 17.3 permanent jobs according to a study by the International Renewable Energy Agency.

This project contributes unprecedentedly to energy security and workforce qualification in maritime industries, with plans for expansion in the eastern, southern, and central western Mediterranean in the future.[54]

E. Future of Maritime Security and Safety Sector:

The maritime security and safety sector is a pivotal aspect of sustainable maritime economic development in the Mediterranean, led by coast guards to ensure the security of the Euro-Mediterranean area against any threats and to address all maritime threats.

Therefore, the 2021 Ministerial Declaration by the Union for the Mediterranean emphasized the necessity to adopt the blue economy concept, which provides a high level of maritime safety and security across all Mediterranean areas, a goal also promoted by the International Maritime Organization's 2015 natural disaster prevention initiative.

In this context, a project has been developed for special regional units for information exchange in the Mediterranean and the Atlantic concerning maritime surveillance. Additionally, the European Agency for Safety and Security has adopted the Safmed initiative aimed at raising safety and security standards and protecting the maritime environment in partnership with Euro-Mediterranean countries, involving countries such as Algeria, Egypt, Jordan, Libya, Lebanon, Morocco, Palestine, and Tunisia.

The project also includes the Medcgff Forum to enhance international cooperation among Mediterranean coast guards, consisting of 24 Mediterranean countries. Moreover, the Copernicus Marine Service Program oversees providing data and forecasting the future of marine services via satellite, along with issuing regular scientific reports with the participation of 30 institutions active in this field.[55]

To sum up, regional cooperation initiatives aimed at enhancing the prospects for the blue economy in the Euro-Mediterranean area remain quite modest to date. All initiatives launched so far are advisory in nature and have not yet taken the form of regional agreements binding on member states, thus lacking mandatory power.

Additionally, financial and technical assistance, as well as the exchange of expertise and knowledge between countries on both shores of the Mediterranean, and investments in this field, have not met the anticipated hopes due to the absence of genuine political will among advanced Mediterranean countries to work in a truly cooperative and participatory atmosphere with countries in the southern and eastern Mediterranean.

This is especially critical with ongoing threats to food and energy security due to the Russian-Ukrainian conflict and the adverse effects of climate change on the Mediterranean region, along with the reluctance of Mediterranean funding bodies to finance developing countries in the Mediterranean to improve their fragile economic conditions.

Conclusion:

In concluding this study, several key insights emerge, particularly that Euro-Mediterranean collaboration aimed at fostering a sustainable blue economy is still nascent. This early stage of cooperation has led primarily to reliance on advisory plans that have not yet crystallized into binding regional treaty frameworks. This scenario accounts for the lack of strategic foresight in planning for the future of the blue economy within the Mediterranean region.

Additionally, the level of serious cooperation among Mediterranean neighboring countries remains quite limited and falls short of meeting the aspirations of the Mediterranean communities, especially those in developing nations who are in urgent need of genuine opportunities to bolster local economies suffering from inflation, debt, and dependency. Moreover, partnership and investment projects within the blue economy sectors have yet to reach the necessary benchmarks, presenting several challenges.

These include providing sustainable employment opportunities, safeguarding food and energy security, capacity building, and facilitating the exchange of modern digital technologies and expertise, particularly in light of the substantial technological divide that exists between the Mediterranean shores, especially in areas like marine renewable energy utilization, pollution control, and the sustainable enhancement of marine fishing and aquaculture productivity.

Furthermore, there is an evident lack of regional platforms to monitor marine environmental issues and hazards that threaten or could potentially undermine the blue economy sectors. In addition, the Mediterranean Trust Fund has been slow in providing financial support equitably and without discrimination among the Mediterranean countries.

Recommendations:

- It is essential to create effective legal and institutional frameworks at the national and regional levels that operate according to spatial and temporal planning approaches to support the future orientation towards a sustainable blue economy in the Euro-Mediterranean region.
- Leveraging modern digital technologies to advance the Mediterranean blue economy sector through the establishment of a platform that provides all information on the status of the blue economy and the risks it faces.
- Emulating the European Union's Copernicus program for environmental monitoring and climate change adaptation as a model for creating a future regional program in the Mediterranean to monitor risks, assess marine litter, and establish a reliable knowledge base to identify various sources of marine pollution in the Mediterranean and their mitigation mechanisms.
- Working towards fair and equitable sharing of the benefits of the blue economy among all Mediterranean countries, considering the needs of developing countries through supporting partnerships, investments, fair financing, technology transfer, and the exchange of expertise and training of personnel in blue economy sectors.
- Formulating the African Agenda 2063, the Union for the Mediterranean decision, and the Mediterranean Strategy into binding regional agreements for the state parties to confer a degree of binding enforceability.
- Directing Mediterranean ports towards carbon neutrality to preserve the Mediterranean marine environment.
- Adopting the circular economy to combat plastic pollution in the Mediterranean.
- Integrating the concept of transitioning to marine renewable energies into the national plans of Mediterranean countries.
- Aligning educational curricula at all educational levels in Mediterranean countries with the concept of the blue economy.

- Striving to raise public awareness in the Mediterranean region about the importance of the blue economy, with the necessity of involving the private sector and stakeholders and encouraging national and foreign investments in this field.

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